

CLAIMS

1. A liquid jet head (5; 32) designed to be mounted on a liquid ejecting instrument (1), said liquid jet head (5; 32) comprising:

- a substrate (7; 33) adapted to be mounted on the liquid ejecting instrument (1), and

- a liquid jet system (9; 34) positioned on the substrate (7; 33), said liquid jet system (9; 34) being adapted for ejecting liquid onto a medium (8) from a distance, said liquid jet system (9; 34) being further designed to be coupled to a control unit (10) serving to activate said liquid jet system (9; 34) for ejecting liquid onto said medium (8),

characterised in that said liquid jet head (5; 32) further comprises measurement means (13) for acting without physical contact with the medium (8) to measure the distance between the liquid jet head (5; 32) and the medium (8), the measurement means (13) being designed to be coupled to said control unit (10), and in that said measurement means (13) is positioned on the substrate (7).

2. A liquid jet head according to claim 1, wherein the control unit (10) is also positioned on said substrate (7).

3. A liquid jet head according to claim 1 or 2, wherein said measurement means (13) comprises an optical system (14, 15; 38, 39, 40, 41) serving to measure the distance between said liquid jet head (5; 32) and the medium (8).

4. A liquid jet head according to claim 1 or 2, wherein said measurement means (13) comprises an ultrasonic acoustic probe serving to measure the distance between said liquid jet head (5) and the medium (8).

5 5. A liquid jet head according to any one of preceding claims, wherein said substrate (7) comprises a supplying channel (73) which extends between an inlet port (73a) designed to be connected to a liquid tank (4) housed within the liquid ejecting instrument (1), and an outlet port (73b) connected to said liquid jet system (9).

10 6. A liquid jet head according to any one of preceding claims, wherein said substrate (7; 33) is made of material comprised in a group consisting of glass, silicon, ceramic and polymer materials.

15 7. A liquid jet head according to any one of preceding claims, wherein said liquid jet system (9; 34) comprises a thermal liquid jet system adapted for ejecting liquid droplets from at least one orifice (12b) by an explosive formation of a vapour bubble within the liquid contained within said liquid jet system (9).

20 8. A liquid jet head according to claim 7, wherein said substrate (7) is formed by a plate having a first side (71) designed to face the medium (8) and a second side (72) opposite to said first side (71), and wherein said thermal liquid jet system (9; 34) comprises:

- at least one resistive heater element (91) which is fixed on the first side (71) of said substrate (7), and
- a block (11) mounted on the first side (71) of the
25 substrate (7), said block (11) having at least one liquid channel (12) having an inlet chamber (12a) and an outlet orifice (12b) facing said at least one resistive heater element (91) for ejecting ink droplets onto the medium (8).

30 9. A liquid jet head according to any one of preceding claims, wherein movement detector means (16) is also positioned on said substrate (7; 33), said movement detector means (16) being adapted to detect movement of the liquid jet head (5; 32) and said movement detector means

(16) being also designed to be coupled to said control unit (10).

5 10. A liquid ejecting instrument (1) comprising a substantially tubular element (2) extending between a first end (2a) and a second end (2b) and designed to be hand-held by a user, said tubular element (2) comprising:

- a liquid tank (4),
- an electrical power source (3), and
- a liquid jet head (5; 32) according to any one of

10 preceding claims, said liquid jet head (5; 32) being mounted at the first end (2a) of the tubular element (2) and connected to the electrical power source (3).